Christina School District Assignment Board

Student's First & Last Name_____ Student ID/Lunch # _____ School _____ Grade _____

Grade Level: 8th

Week of May 25th, 2020

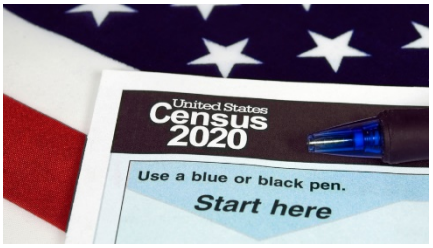
		No School	Day 1	Day 2	Day 3	Day 4
ELA			This week we will explore the 2020 US Census and main ideas and themes. Read and respond in a paragraph to both of the prompts below. 1. Can you think of any groups that are kept from being citizens or having the full rights of citizens in the United States today? 2. Why do you think there are still restrictions given the laws protecting citizenship?	Read the article "**Pro/Con".** As you read underline examples of people facing challenges with accessing citizenship or the rights of citizenship. Annotate questions, comments or connections you have to these challenges. Summarize the text and answer questions 1-4.	Read the article **"We are Still Here".** As you read underline examples of people facing challenges with accessing citizenship or the rights of citizenship. Annotate questions, comments or connections you have to these challenges. Summarize the text and answer questions 1-4.	**Writing** Which citizenship issues do you feel are most important to address right now? Cite evidence from the articles in your response.
Math	**Math8**		*Real Numbers* Answer "Which One Doesn't Belong?" and justify your choice. (attached) Read Math Notes: The Real Number System. Complete 9-100 and 9-101 (attached)	Complete 9-102 and 9-107 (attached) Refer to Math Notes if needed.	Complete 9-108 and 9-109. (attached) Refer to Math Notes if needed.	Complete 9-110 and 9-116. (attached) Refer to Math Notes if needed.

Christina School District Assignment Board

Student's First & Last Name_____ Student ID/Lunch # _____ School _____ Grade _____

	IM1 (MS only) (IM 2 can be found on the HS Boards)		*Addition Rule* Answer "Which One Doesn't Belong?" and justify your choice. (attached) Read Concept Summary: Probability Events. Complete Addition Rule Worksheet 1 # 1-3. (attached)	Complete Addition Rule Worksheet 2 # 1-9. (attached) Refer to Concept Summary if needed.	Complete Addition Rule Worksheet 3 # 1-7. (attached) Refer to Concept Summary if needed.	Read pages 66-67 and use examples to complete p. 68 #1-5. (attached)
Science			**What is Energy?:** Fold a blank piece of paper into three columns. In the first column, write everything you THINK you know about energy and its different forms. In the second column, write at least three things you WONDER about energy. As you read and learn about energy throughout the week, add at least 2-3 ideas you LEARNED to the final column.	**Matter and Energy: What is Energy? (part 1):** Read article. In YELLOW, highlight or underline information about the different forms of energy. In READ, highlight or underline information about how energy is conserved. In BLUE, highlight or underline information about where energy comes from. In GREEN, highlight or underline information about how different types of energy are used.	**Matter and Energy: What is Energy? (part 2):** Reread article and/or notes as needed. Read the following claim: Energy changes forms, but it is never created or destroyed. Write: What evidence from the article supports this claim? Explain why the evidence supports the claim.	**Matter and Energy: What is Energy? (part 3):** Reread article and/or notes as needed. Write your best answers to the following: a) Write an example statement that describes a change from potential to kinetic energy. b) Write an example that shows the energy changes from a solar panel creating electricity to power lights for a house. c) Using information from the article, write 3 roles natural sources of energy can have. d) How can people reduce the use of fossil fuels and take advantage of other sources of energy?
Social Studies			Complete Activity 1 from the document titled, "Emancipation Proclamation"	Complete Activity 2 from the document titled, "Emancipation Proclamation"	Complete Activity 3 from the document titled, "Emancipation Proclamation"	Complete Activity 4 and Activity 5 from the document titled, "Emancipation Proclamation"

PRO/CON: Should our next census ask about citizenship status?



PRO: The question allows the government to properly disburse needed funds and services

Every 10 years, the U.S. government conducts a census. The census is a series of questions that helps determine the population of each state. It's important for deciding how many representatives each state gets in Congress, among other uses.

The U.S. Census Bureau plans to include a question on the 2020 census asking whether the respondent is a U.S. citizen.

Census takers have been asking that question on one survey or another since the very first census. Even so, some people have a problem with it. They shouldn't. Such a question could be very helpful for those who help make laws. For example, it can help count how many people lack health insurance to help them afford going to the doctor.

The Census Bureau included a citizenship question through 1950. It stopped in 1960 in the hopes of increasing response rates. The question was still included on what is called the "long form" census in 1970, which went to fewer households.

In 2005, the citizenship question was added to the American Community Survey, an annual survey of a very small percentage of households.

The 10-year census has not included a citizenship question for decades now. Because of this, the government does not know how many of the respondents are citizens, non-citizens in the U.S. legally, or undocumented and in the U.S. illegally.

Health Care Coverage

During health care reform debates in the past, some of us pointed out that perhaps 25 percent of those without insurance were undocumented. That means they are unlikely to be covered by health insurance reform efforts. Sure enough, "Obamacare" excluded them from receiving health insurance discounts.

Obamacare, also known as the Affordable Care Act, is the health care law signed into law by President Barack Obama in 2010. The goal of Obamacare was to help more families get insurance and to make sure that people who were already sick could still get insurance.

Even today, there are perhaps 8 million people in the country illegally who don't have health insurance. As it stands, they will simply remain uninsured.

The Census Bureau's annual American Community Survey does ask a citizenship question. While more frequent, those surveys are limited samples, about 3.5 million out of roughly 126 million households. The smaller sample numbers are then used to draw conclusions about the country as a whole. Even then, though, the bureau doesn't include an estimate of the uninsured who are in the U.S. illegally.

The result is that estimating the number of uninsured who are in the country illegally has mostly been a guessing game.

Helpful In Making Policy Decisions

The issue is not limited to health insurance, though. The federal government funds a number of programs where taxpayer money supports immigrants in the country illegally. Knowing how many undocumented people are receiving those funds could help inform government decisions.

A citizenship question might discourage some participation. The Census Bureau has increasingly used various methods, statistical and otherwise, to fill in the gaps, though.

Some form of a citizenship question has been around for two centuries. Asking it on the census once again would help take a little of the guesswork out of many of our government rule-making challenges.

Merrill Matthews is a resident scholar with the Institute for Policy Innovation. He holds a Ph.D. in the humanities from the University of Texas.

CON: Such questions don't belong in a free country's census

For the first time since the 1950 census, the 2020 census will include a question about whether a respondent is a citizen.

The Trump administration explained some worrying plans for the 2020 census when Commerce Secretary Wilbur Ross spoke before lawmakers in 2017. Ross runs the Commerce Department, which is in charge of the U.S. Census Bureau. Ross said that he wanted census data to be "re-used" by other government departments and private businesses.

The inclusion of a citizenship question in the 2020 census is worrying. So is the willingness of the government to "re-use" census data for other purposes. For example, the data could be used to locate groups of non-citizens.

Federal law prohibits sharing census data with other government agencies. For those who believe census data abuse cannot happen, it should be noted that it has already occurred quite recently in the United States.

Census Data Used For Other Purposes

In 2004, the Department of Homeland Security (DHS) requested census data from 2000 on Americans of Arab descent. Using the census data, DHS was able to figure out where the Arab-Americans lived.

Using 1940 census data, the federal government rounded up some 120,000 Japanese-American citizens. The government put Japanese-Americans in internment camps during World War II.

President Donald Trump and other high-ranking officials often say hateful things about people from other countries. Because of this, it's safe to say that collecting citizenship information can only have a harmful intent.

The official reason given by Trump's team is that the Justice Department needs citizenship data so it can enforce the Voting Rights Act by determining who is able to vote. There's no way this is true.

The Justice Department is led by Attorney General Jeff Sessions. He has a shameful record in Alabama of opposing civil rights and voting rights. Nothing suggests he now wants to help African-Americans and other minorities vote.

Some States Oppose Citizenship Question

States and cities are right in fighting the Trump administration's unconstitutional citizenship question in court. At least 17 states have filed lawsuits against the citizenship question. Former Census Bureau directors, both Republicans and Democrats, have cautioned against asking about citizenship.

The name Jacques Fauvet is not known to many Americans. However, in France, Fauvet was known for continually warning against the misuse of census data.

Fauvet oversaw French data protection from 1984 to 1999. He pointed out that when the German Nazis took over France in 1940, one of their first acts was to seize as many detailed census records as possible.

From these records, the Nazis were able to construct their lists of who would be arrested and taken to the concentration camps. Enough said!

A graduate of the University of Mississippi, Wayne Madsen is a progressive commentator whose articles have appeared in a wide range of American and European newspapers.

Digging Deeper

Instructions: Choose the answer below that best answers the question.

1. How does the PRO author convey the importance of asking about citizenship on the census?

A. by summarizing the positive effects of the citizenship question while it was in use in the past

B. by highlighting evidence that the short-form community surveys collect inaccurate data

C. by acknowledging that the question might discourage some people from participating in the census

D. by arguing that knowing more would help the government determine who needs health care coverage

2. How does the CON author point out a weakness in the government's argument that the citizenship question will help people?

A. The census data might be reused by government departments and businesses.

B. The record and actions of the president and other officials contradict this idea.

C. Federal law prohibits the sharing of census data with other government agencies.

D. Jacques Fauvet warned that no government collects census data for good reasons.

3. The PRO author claims that asking whether people responding to the census are citizens would take the guesswork out of government rule-making challenges. Is there relevant and sufficient evidence to support this point?

A. The author provides more than enough evidence that asking about citizenship would help the government by providing facts and statistics about the number of undocumented people receiving funds.

B. The author provides evidence that asking about citizenship would help the government by illustrating how challenges to rule-making and programs have risen since the question was eliminated.

C. The author provides some evidence that the government has to rely on estimates for its calculations, but does not provide evidence that asking the question would be more effective than this kind of analysis.

D. The author provides no evidence that including a citizenship question would take the guesswork out of creating rules and programs, choosing to focus instead on how it would help voting rights.

4. Which piece of evidence is MOST relevant to the CON author's argument?

A. Ross runs the Commerce Department, which is in charge of the U.S. Census Bureau. Ross said that he wanted census data to be "re-used" by other government departments and private businesses.

B. Using 1940 census data, the federal government rounded up some 120,000 Japanese-American citizens. The government put Japanese-Americans in internment camps during World War II.

C. The Justice Department is led by Attorney General Jeff Sessions. He has a shameful record in Alabama of opposing civil rights and voting rights.

D. The name Jacques Fauvet is not known to many Americans. However, in France, Fauvet was known for continually warning against the misuse of census data.

"We are still here": Native Americans fight to be counted in U.S. census

In 2017, President Donald Trump signed an executive order that reduced government protections of national monuments. He reduced the size of Bears Ears and Grand Staircase-Escalante national monuments in Utah by nearly 2 million acres. Trump claimed the law was supported by the state and local county government where the monuments are located.

However, on the ground, many people were opposed to this action.

Native Americans account for a majority of the population in San Juan County, Utah. The county includes parts of the reservations of the Navajo Nation and the Ute Mountain Ute Tribe. Both tribes officially support the protection of Bears Ears. Through gerrymandering, the majority Native American county had a majority white board of county officials.

Gerrymandering is the dividing of an area into election districts in a way that gives one political party an unfair advantage.

Last year, everything changed. The Navajo Nation brought a lawsuit against San Juan, accusing the county of racial gerrymandering under the Voting Rights Act of 1965. The law prohibits racial discrimination in voting. The tribe won. The county was forced to redraw its election maps. In the fall of 2018, for the first time ever, the county elected a majority Native American board of county officials. The board now officially supports the protection of Bears Ears.

Fighting For Political Representation

Today, the Navajo Nation is still fighting for political representation using the U.S. census, which will take place this year. Census data helped the tribe win the lawsuit by showing that the election maps had reduced the voting power of Native American residents. The information also determines the tribe's representation in many other bodies of government, including Congress.

According to the U.S. Constitution, all residents living in the United States must be counted every 10 years. The results of the census determine seats in Congress, local election maps and how much government money an area will receive for the next 10 years. Despite the power of the U.S. census, Native Americans have historically been undercounted.

"It impacts everything," Charlaine Tso said. Tso represents District 9 on the Navajo Nation's tribal council. "It impacts education, roads and maintenance, elder care, funding for everything on our reservation."

Tso serves on the Navajo Nation's Complete Count Commission for the 2020 census. The committee believes Navajos were significantly undercounted in the 2010 census, which ended up lowering government funding levels for the tribe. "We know for sure that it was nowhere near accurate. That margin, imagine what difference it makes in federal funding."

The problem is not unique to the Navajo Nation. An estimated 1 in 7 Native Americans living on tribal lands were not counted in the last U.S. census, making Native Americans the group most likely to be missed.

Living In "Hard-To-Count" Areas

An estimated 1 in 3 Native American people live in what the Census Bureau considers "hard-to-count" rural census tracts. In many states with large indigenous populations, more than half of Native American residents live in such "hard-to-count" areas.

Native Americans are also disproportionately affected by other factors such as poverty, housing insecurity and even age. Forty-two percent of Native Americans are under the age of 24.

Desi Rodrigues-Lonebear is a member of the Northern Cheyenne tribe and a demographer, which is an expert in changing human populations. She advised the Census Bureau for six years. She says another big factor is lack of trust.

"You're trying to convince people, your own relatives even, who for their whole lives wanted nothing else but to be left alone by the feds," Rodrigues-Lonebear said. "And you're coming to them and saying, 'But we really need you to fill out this form. We really need you to count.'"

Many tribal leaders and advocates are worried the undercount could be even worse in 2020. For the first time ever, the census will be mostly online. However, more than a third of Native Americans living on tribal land lack access to the internet, making it the least-connected part of the United States.

Reduced Funding For Translation Services

"It [the census] moving online almost ensures an undercount of Native Americans of historic proportions," said Natalie Landreth. She is a Chickasaw Nation member and a lawyer for the Native American Rights Foundation (NARF).

Government funding for translation into Native American languages was also reduced this year, only offering translation services to the Navajo language, according to NARF. Before, the bureau has funded translation services into many indigenous languages.

"There are census tracts in Alaska where 75 percent of the households don't speak English at home," says Landreth.

According to Jessica Imotichey, a Chickasaw Nation member and a coordinator for the L.A. region of the U.S. Census Bureau, the agency is working to ensure Native Americans are counted in 2020. "[The census] is about representation, not just politically but also visibility," Imotichey said. "Recognizing Native Americans and Alaskan Natives, that we are still here, that we still remain."

Undercounts Mean Millions Of Dollars Lost

The census started three months early in remote Alaska in January. Workers traveled to Alaskan native villages to count residents in person. While only 0.02 percent of the U.S. population will be counted in person, the majority of them will be indigenous.

Funding for census outreach campaigns varies significantly by location. While some states like California are planning to spend $187 million on census outreach, 24 states have budgeted nothing. Three of those states, Oklahoma, North Dakota and South Dakota, have significant Native American populations.

New Mexico, along with Alaska, was the most undercounted state in 2010. Some counties returned less than 50 percent of census surveys. According to New Mexico Counts 2020, just a 1 percent undercount in 2020 could result in the loss of $750 million in government aid to the state.

The Navajo Nation's Complete Count Commission has already met with U.S. senators and regional Census Bureau representatives. They discussed the unique challenges of counting Navajo citizens. The tribal government is looking to hire a sizable outreach team this spring, with an emphasis on hiring fluent Navajo speakers, according to Tso.

"We have to do everything possible to count every Navajo," Tso said.

Digging Deeper

Instructions: Choose the answer below that best answers the question.

1. Which section of the article BEST explains why tribal leaders expect the 2020 census to leave out even more Native Americans?

A. Introduction [paragraphs 1-5]

B. "Fighting For Political Representation"

C. "Reduced Funding For Translation Services"

D. "Undercounts Mean Millions Of Dollars Lost"

2. Select the paragraph from the section "Living In Hard-To-Count Areas" that explains why some Native Americans might NOT want to participate in the census.

A. An estimated 1 in 3 Native American people live in what the Census Bureau considers "hard-to-count" rural census tracts. In many states with large indigenous populations, more than half of Native American residents live in such "hard-to-count" areas.
B. Native Americans are also disproportionately affected by other factors such as poverty, housing insecurity and even age. Forty-two percent of Native Americans are under the age of 24.
C. "You're trying to convince people, your own relatives even, who for their whole lives wanted nothing else but to be left alone by the feds," Rodrigues-Lonebear said. "And you're coming to them and saying, 'But we really need you to fill out this form. We really need you to count.'"
D. Many tribal leaders and advocates are worried the undercount could be even worse in 2020. For the first time ever, the census will be mostly online. However, more than a third of Native Americans living on tribal land lack access to the internet, making it the least-connected part of the United States.

Which two of the following sentences from the article include CENTRAL ideas of the article?

1. Despite the power of the U.S. census, Native Americans have historically been undercounted.
2. Native Americans are also disproportionately affected by other factors such as poverty, housing insecurity and even age.
3. Many tribal leaders and advocates are worried the undercount could be even worse in 2020.
4. While some states like California are planning to spend $187 million on census outreach, 24 states have budgeted nothing.

    A. 1 and 3
    B. 1 and 4
    C. 2 and 3
    D. 2 and 4

Which statement would be MOST important to include in a summary of the article?

A. Native Americans make up a majority of people who live in San Juan County in Utah.
B. Native American groups are working hard to get political representation through the U.S. census.
C. Many Native Americans were against the reduction of Bears Ears and Grand Staircase-Escalante national monuments.
D. Many Native Americans in Alaska will be counted in person for the 2020 U.S. census.

Math 8 – Week of May 25th

Rational Numbers

Which One Doesn't Belong? Why?

$$3^2 + b^2 = 5^2$$

$$b^2 = 5^2 - 3^2$$

$$3^2 + 5^2 = b^2$$

$$3^2 + 4^2 = 5^2$$

Any number that can be written as the ratio of two integers ab with b≠0 is called a rational number. A rational number can be matched to exactly one point on a number line. There are many other points on the number line, however, for which there is not a corresponding rational number. These numbers are called **irrational numbers**. Numbers such as π, 2, −5 are irrational numbers. The **rational numbers** and the irrational numbers make up all of the numbers on the number line and together are called the **real numbers**.

In this lesson you will learn how to identify a number as rational or irrational. You will also write decimals as fractions to show that they are rational. Then you will compare these kinds of numbers and place them on the number line.

9-100 In previous courses, you worked with decimals that repeated and terminated. All of these are called **rational numbers** because they can be written as a ratio, like 2/3 and 5/1= 5. Because $\sqrt{9} = 3$, $\sqrt{9}$ is also a rational number. However, there are some numbers that do not repeat or terminate when they are written as decimals, such as 2. Such numbers are called **irrational numbers**. An irrational number cannot be written as a ratio of any two integers. In other words, an irrational number cannot be written as a fraction.

$$\sqrt{2} = 1.41421356237...$$

Use a calculator (or cell phone) to find the square root of the following numbers. Decide whether the decimals are rational (having decimals that terminate or repeat) or irrational.

a. $\sqrt{6.25}$

b. $\sqrt{100}$

c. $\sqrt{7}$

9-101 Do you think that you can decide by looking at it whether a number is rational or irrational? You will explore this idea in parts (a) through (d) below.

a. Without doing any calculations, which of the numbers below do you think are rational numbers? Which do you think are irrational numbers? Mark down your predictions.

$-\frac{5}{9}$	$\sqrt{7}$	$\frac{21}{4}$	$-\sqrt{15}$
π^2	$-\sqrt{76}$	$\frac{730}{99}$	-6.4×10^{-2}

b. Now use your calculator and write the equivalent decimal for each of the numbers in the list. Were your predictions correct?

c. What do you notice about the decimal forms of rational numbers compared to irrational numbers?

d. Is $\sqrt{42.25}$ rational or irrational? Explain your answer.

9-102 Every rational number can be written as a fraction, that is, as a ratio of two integers. Since 0.78 is described in words as "seventy-eight hundredths," it is not a surprise that the equivalent fraction is 78/100. Use what you know about place value to rewrite each terminating decimal as a fraction. Check your answers with a calculator.

a. 0.19

b. 0.391

c. 0.001

d. 0.019

e. 0.3

f. 0.524

9-107 Indicate the approximate location of each of the following real numbers on a number line. What can make this task easier? Try to do it without using a calculator.

$$\frac{2}{3}, -0.75, \sqrt{8}, -\frac{9}{5}, \frac{\pi}{3}, 2\frac{1}{4}$$

9-108 Without using a calculator, order the numbers below from least to greatest.

$$\sqrt{102}, 10, 3\pi, \sqrt{99}, 1.1 \times 10^1, 9.099$$

9-109 Copy and complete the following sentences.

a. The set of all numbers on the number line are called the _____.

b. A number that has an equivalent terminating or repeating decimal is called a(n) _____.

c. A number that has an equivalent decimal that is non-repeating is called a(n) _____.

d. Any number that can be written as a fraction of integers is a(n) _____.

9-110 Graph each of the pairs of points listed below and draw a line segment between them. Use the graph to help you find the length of each line segment. State whether each length is irrational or rational.

a. (−3,0) and (0, −3)

b. (2,3) and (−1,2)

c. (3,2) and (3, −3)

9-116 Identify the following numbers as rational or irrational. If the number is rational, show that it can be written as a fraction.

a. $\sqrt{36}$

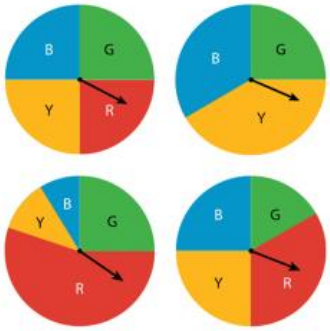
b. $0.\overline{62}$

c. $\sqrt{92}$

IM1 (Middle School) – Week of May 25th

Addition Rule

Which One Doesn't Belong? Why?



Concept Summary Assess

CONCEPT SUMMARY Probability Events

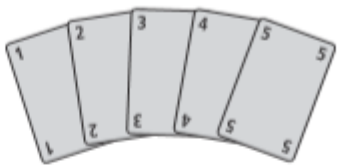
	Mutually Exclusive Events	Independent Events
WORDS	*A* and *B* are mutually exclusive because no outcome is in both *A* and *B*.	*D* and *M* are independent because the occurrence of one does not affect the probability of the other.
ALGEBRA	If *A* and *B* are mutually exclusive events, then $P(A \text{ or } B) = P(A) + P(B)$. If *C* is the event that *A* does not occur, then $P(C) = 1 - P(A)$.	If *D* and *M* are independent events, then $P(D \text{ and } M) = P(D) \cdot P(M)$. If $P(D \text{ and } M) = P(D) \cdot P(M)$, then *D* and *M* are independent events.
EXAMPLES	Experiment: spin the spinner.  Event *A*: number less than 3 Event *B*: number greater than 5 $P(A \text{ or } B) = P(A) + P(B) = \frac{2}{6} + \frac{1}{6} = \frac{1}{2}$	Experiment: spin the spinner and roll a number cube  Event *D*: odd number on spinner Event *M*: number greater than 4 on number cube $P(D \text{ and } M) = P(D) \cdot P(M) = \frac{1}{2} \cdot \frac{1}{3} = \frac{1}{6}$

Addition Rule Worksheet 1

1. A card is selected at random and the number cube is rolled.

Event A: An odd-numbered card is selected.

Event B: An odd number comes up on the number cube.



Use the terms to complete true statements.

Terms may be used more than once.

are	are not	no
does	does not	at least one
equals	does not equal	

a. A and B _____ mutually exclusive because _____ outcome in A can occur at the same time as an outcome in B.

b. A and B _____ independent because the occurrence of A _____ affect the probability of B.

c. P(A or B) _____ P(A) + P(B) because A and B _____ mutually exclusive.

d. P(A and B) _____ P(A) · P(B) because A and B _____ independent.

2. Dakota calculates the probabilities shown below.

Event A: an even numbered card Event B: a number cube roll greater than 4

Identify and correct the error(s).

$P(A) = \frac{2}{5}$

$P(B) = \frac{2}{6}$

$P(A \text{ and } B) = \frac{22}{30}$

3. A classmate asks Juan to find the probability of tossing a number cube and getting an even number on the first roll and a 2 on the second roll. Complete the calculation.

$P(\text{even}) = \frac{3}{6}$ $P(2) = \frac{}{6}$ $P(\text{even and } 2) = \frac{1}{} \cdot \frac{}{6} = \text{—}$

Addition Rule Worksheet 2

1. **Understand** Only 93% of the airplane parts being examined pass inspection. What is the probability that the next 5 parts examined will all pass inspection?

2. **Apply** Exactly 62% of the students in your school are under 17 years old. In addition, 4% of the students are over 18. What is the probability that a student chosen at random is under 17 or over 18?

You have a drawer with five pairs of white socks, three pairs of black socks, and one pair of red socks. You choose one pair of socks at random each morning, starting on Monday. You do not put the socks you choose back in the drawer. Find the probability of each event.

3. You select black socks on Monday and white socks on Tuesday.

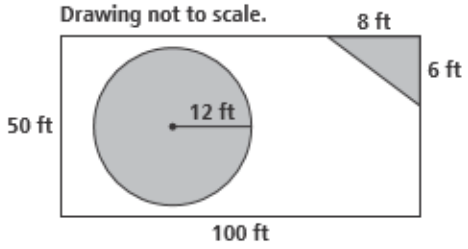
4. You select white socks on Monday and Tuesday.

The rectangular yard shown below has a circular pool and a triangular garden. A ball from an adjacent golf course lands at a random point within the yard. Find each probability.

5. The ball lands in the garden.

6. The ball lands in the garden or the pool.

7. The ball does not land in the pool.



8. Of the 195 students in the senior class, 104 study Spanish and 85 study French, with 12 studying both Spanish and French. What is the probability that a student chosen at random is studying Spanish but not French?

9. You donate 8 baseballs to a local baseball team. Your uncle donates 12 baseballs. If a total of 50 baseballs are donated, what is the probability that the first pitch of the season uses one of your baseballs or one of your uncle's baseballs?

Addition Rule Worksheet 3

For a math project, Maxine's class surveyed students at their school about the mode of transportation they most often use to go to and from school.

A **frequency table** is a record of the number of times that an event occurs.

Relative frequency is the ratio of the number of times an event occurs to the total number of trials.

Frequency Table

Grade	9	10	11	12	Total
Walk	52	44	40	32	
Car					
Bus	84	90		42	282
Total	160	176	160	140	636

Relative Frequency

Grade	9	10	11	12	Total	Probability (%)
Walk	0.08	0.07	0.06	0.05		
Car						
Bus	0.13	0.14		0.07		
Total	0.25	0.28	0.25	0.22		

1. A student lost some of the data. Complete the frequency table.

2. Complete the relative frequency table.

Use the data in the tables for Items 3–7. Write probabilities to the nearest whole percent.

3. What is the sum of all the individual relative frequencies? How can you use this to check your work?

4. a. How can you use frequency to find the relative frequency of an outcome?

b. How can you use relative frequency to find the probability that a senior selected at random takes the bus? Find the probability and explain.

5. If 8% of students sometimes take a bike to school, how many spaces in the bike rack should the school make available for each student to have a space?

6. What is the probability that a 10^{th} grader walks to school or takes the bus?

7. If 5% of students in Grade 9 who usually take the bus sometimes ride a bicycle to school, what is the probability that a ninth-grade student selected at random usually takes the bus and sometimes rides a bicycle to school?

COUNTING METHODS

There are several different models you can use to determine all possible outcomes for compound events when *both* one event *and* the other occur: a systematic list, a probability table, and a probability tree. See the Math Notes box in Lesson 5.5.2 of the *Core Connections, Course 2* text for details on these three methods.

Not only can you use a **probability table** to help list all the outcomes, but you can also use it to help you determine probabilities of independent compound events when *both* one event *and* the other occur. For example, the following probability table (sometimes called an **area model**) helps determine the probabilities from Example 2 in the previous section:

	$\frac{1}{4}$ white	$\frac{1}{4}$ red	$\frac{1}{4}$ blue	$\frac{1}{4}$ green
$\frac{1}{3}$ sweater				
$\frac{1}{3}$ sweatshirt				
$\frac{1}{3}$ t-shirt				

Each box in the rectangle represents the compound event of *both* a color *and* the type of clothing (sweater, sweatshirt, or t-shirt). The area of each box represents the probability of getting each combination. For example, the shaded region represents the probability of getting a green t-shirt: $\frac{1}{4} \cdot \frac{1}{3} = \frac{1}{12}$.

Example 3

	H	T
Make		
Miss		
Miss		

At a class picnic Will and Jeff were playing a game where they would shoot a free throw and then flip a coin. Each boy only makes one free throw out of three attempts. Use a probability table (area model) to find the probability that one of the boys makes a free throw, and then flips a head. What is the probability that they miss the free throw and then flip tails?

By finding the area of the small rectangles, the probabilities are: P(make *and* heads) = $\frac{1}{3} \cdot \frac{1}{2} = \frac{1}{6}$, and P(miss *and* tails) = $\frac{2}{3} \cdot \frac{1}{2} = \frac{2}{6}$

Example 4

Chris owns a coffee cart that he parks outside the downtown courthouse each morning. 65% of his customers are lawyers; the rest are jury members. 60% of Chris's sales include a muffin, 10% include cereal, and the rest are coffee only. What is the probability a lawyer purchases a muffin or cereal?

The probabilities could be represented in an area model as follows:

	lawyer 0.65	jury 0.35
muffin 0.60		
cereal 0.10		
coffee only 0.30		

Probabilities can then be calculated:

	lawyer 0.65	jury 0.35
muffin 0.60	0.39	0.21
cereal 0.10	0.065	0.035
coffee only 0.30	0.195	0.105

The probability a lawyer purchases a muffin or cereal is
$0.39 + 0.065 = 0.455$ or 45.5%.

Example 5

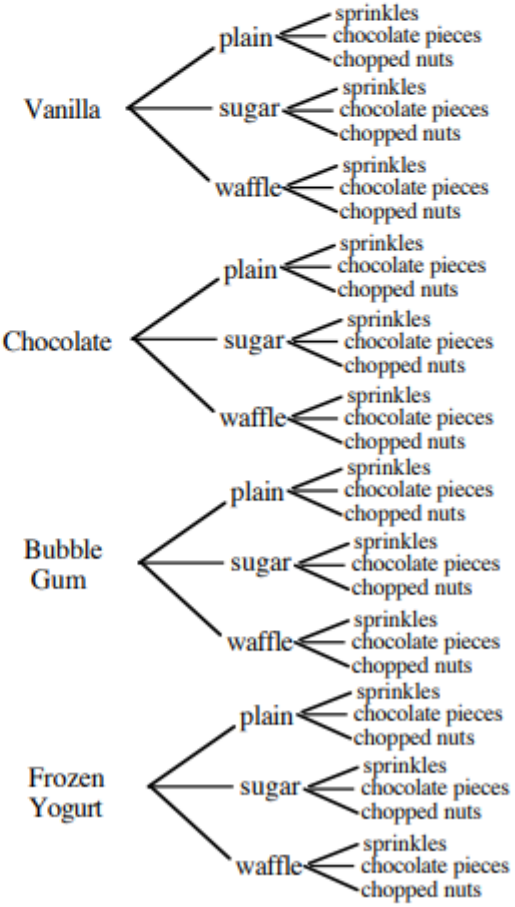
The local ice cream store has choices of plain, sugar, or waffle cones. Their ice cream choices are vanilla, chocolate, bubble gum, or frozen strawberry yogurt. The following toppings are available for the ice cream cones: sprinkles, chocolate pieces, and chopped nuts.

What are all the possible outcomes for a cone *and* one scoop of ice cream *and* a topping? How many outcomes are possible?

Probability tables are useful only when there are two events. In this situation there are three events (cone, flavor, topping), so we will use a probability tree.

There are four possible flavors, each with three possible cones. Then each of those 12 outcomes can have three possible toppings. There are 36 outcomes for the compound event of choosing a flavor, cone, *and* topping.

Note that the list of outcomes, and the total number of outcomes, does not change if we change the order of events. We could just as easily have chosen the cone first.



Problems

Use probability tables or tree diagrams to solve these problems.

1. How many different combinations are possible when buying a new bike if the following options are available:
   - mountain bike or road bike
   - black, red, yellow, or blue paint
   - 3-speed, 5-speed, or 10-speed

2. A new truck is available with:
   - standard or automatic transmission
   - 2-wheel or 4-wheel drive
   - regular or king cab
   - long or short bed

   How many combinations are possible?

3. A tax assessor categorizes 25% of the homes in how city as having a large backyard, 65% as having a small backyard, and 10% as having no backyard. 30% of the homes have a tile roof, the rest have some other kind of roof. What is the probability a home with a tile roof has a backyard?

4. There is space for only 96 students at University High School to enroll in a shop class: 25 students in woodworking, 25 students in metalworking, and the rest in print shop. Three fourths of the spaces are reserved for seniors, and one fourth are for juniors. What is the probability that a student enrolled in shop class is a senior in print shop? What is the probability that a student enrolled in shop class is a junior in wood or metal shop?

5. Insurance companies use probabilities to determine the rate they will charge for an insurance policy. In a study of 3000 people that had life insurance policies, an insurance company collected the following data of how old people were when they died, compared to how tall they were. In this study, what was the probability of being tall (over 6 ft) and dying under 50 years old? What was the probability of being tall and dying under 70 years old? What was the probability of dying between 50 and 69 years old?

	Age (years)				
	Under 50	50 to 59	60 to 69	70 to 79	80 or over
over 6 ft tall	30	25	52	82	111
under 6 ft tall	270	225	468	738	999

Matter and Energy: What is energy?

By Encyclopaedia Britannica, adapted by Newsela staff on 04.18.17
Word Count **815**
Level **MAX**

Image 1. Wind is a source of energy. Turbines like these capture the wind's energy and turn it into another form of energy, such as electricity. Photo from: Wikimedia Commons

Energy is another word for power. Energy makes things move. It makes machines work and makes living things grow.

Types And Forms Of Energy

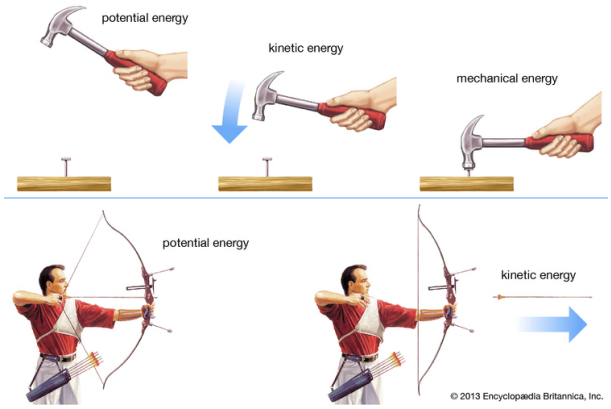
Energy exists in many different forms. Animals get energy from eating food. Electrical energy is associated with the tiny units called atoms that make up everything in the universe. The energy is created when particles called electrons move from one atom to another. Heat and light are also forms of energy.

One form of energy can also be transferred into another. Through a battery stored chemical energy changes into electric energy, and in a lightbulb electrical energy changes to light and heat.

Potential And Kinetic Energy

Each of the different forms of energy can be described as either potential energy or kinetic energy. Potential energy is stored energy. For example, the chemical energy of food is stored energy. When

people eat, their bodies change the stored energy into moving energy such as heat energy or mechanical energy.

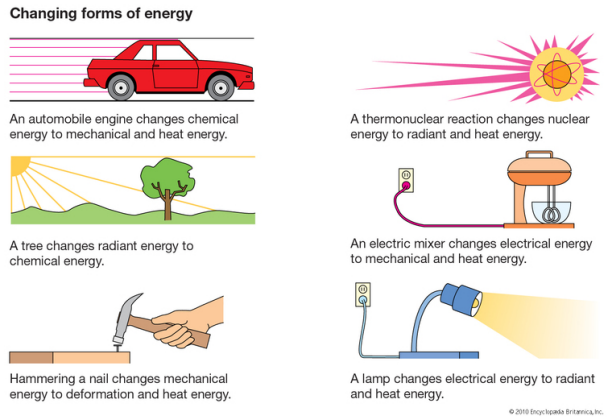


Potential energy can also come from the position of an object. An object with potential energy because of its position has the ability, or potential, to move. For example, potential energy is stored in a rock perched on a cliff and in an arrow stretched back on a bowstring. If the cliff crumbles under the rock, the rock falls. If the string is let go, it moves forward and pushes the arrow through the air.

As the rock and the arrow move, they gain kinetic energy, or moving energy. All moving objects have kinetic energy, even atoms. The total random moving energy of all of the atoms and molecules in an object is called heat energy (or thermal energy). The moving energy of a rock rolling down a hill is called mechanical energy.

Law Of Conservation Of Energy

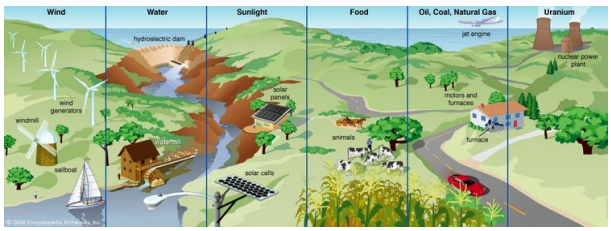
A scientific law is something that describes a wide range of observations and results from experiments. One basic law about energy is called the law of conservation of energy. This law states that energy cannot be created or destroyed. It also states that energy can neither appear out of nowhere nor vanish into nowhere.



When we say that energy is being "used" to power something, we do not mean that energy is being used up. Instead what is meant is that the energy is being changed from one form of energy into another form. For example, when people eat, their bodies change the chemical energy of food into heat energy and mechanical energy to keep warm and to move around.

Sources Of Energy

The sun is the source of almost all energy on Earth. The sun makes plants grow. When animals eat the plants they gain energy from the chemicals that make up the plants. When plants die they decay, or break down, and over millions of years this process creates what are called fossil fuels. Fossil fuels include petroleum, natural gas and coal. These are used to run factories, heat homes and power automobiles.



Fossil fuels pollute the atmosphere when they are used. They are also being used up very quickly. Scientists therefore have tried to find other sources of energy to replace the fossil fuels. Some of these sources have been used directly for many years. These include wind, water and heat from Earth. Sailboats harness the power of the wind to move them along.

Water mills use water flowing through rivers to turn wheels that grind grain. In ancient times some people used hot water and gases from Earth to heat their houses. They ran the hot air in pipes underneath their floors to provide heat.

Scientists gradually learned to use these natural sources to create new forms of energy. These new forms include electricity and nuclear energy. For example, the energy of wind is now used to turn machines that create electricity. On many rivers people have built dams, which use the energy of the flowing river to operate machines that also create electricity. In sunny areas devices collect the heat of the sun and store it. That heat can be used to heat water and houses. Other devices convert the sun's rays into electricity. This is known as solar energy. Scientists have also learned how to use certain atoms to make nuclear energy. Nuclear power in turn can be used to create electricity.

EMANCIPATION PROCLAMATION

Benchmark Standard	History 3a: Students will compare different historians' descriptions of the same societies in order to examine how the choice of questions and use of sources may affect their conclusions.
Grade	8
Vocabulary / Key Concepts:	Point of view

~This is a Stanford History Education Group (SHEG) lesson, modified by CSD for use at home~

CENTRAL HISTORICAL QUESTION: Did Lincoln free the slaves or did the slaves free themselves?

ACITIVITY 1: Read the following article "Background on Emancipation Proclamation" and answer the question that follows the article.

Background on the Emancipation Proclamation (from http://www.pbs.org/wgbh/aia/part4/4p2967.html)

In his inaugural address, delivered on March 4, 1861, Lincoln proclaimed that it was his duty to maintain the Union. He also declared that he had no intention of ending slavery where it existed, or of repealing the Fugitive Slave Law – a position that horrified African Americans and their white allies.

To retain the loyalty of the border states – Delaware, Maryland, Kentucky, and Missouri – President Lincoln insisted that the war was not about slavery or black rights; it was a war to preserve the Union. His words were not simply aimed at the loyal southern states, however – most white northerners were not interested in fighting to free slaves or in giving rights to black people. For this reason, the government turned away African American volunteers who rushed to enlist. Lincoln upheld the laws barring blacks from the army, proving to northern whites that their race privilege would not be threatened.

The federal government had a harder time deciding what to do about escaping slaves. As the northern army pushed southward, thousands of fugitives fled across Union lines. Because there was no consistent federal policy regarding fugitives, individual commanders made their own decisions. Some put them to work for the Union forces; others wanted to return them to their owners. Finally, on August 6, 1861, fugitive slaves were declared to be "contraband of war" if their labor had been used to help the Confederacy in any way. And if found to be contraband, they were declared free.

Though "contraband" slaves had been declared free, Lincoln continued to insist that this was a war to save the Union, not to free slaves. But by 1862, Lincoln was considering emancipation as a necessary step toward winning the war. The South was using enslaved people to aid the war effort. Black men and women were forced to build fortifications, work as blacksmiths, nurses, boatmen, and laundresses, and to work in factories, hospitals, and armories. In the meantime, the North was refusing to accept the services of black volunteers and freed slaves, the very people who most wanted to defeat the slaveholders.

1. Based on the article, do you think that Lincoln freed the slaves or that the slaves freed themselves? Explain and support your answer.

ACTIVITY 2: Read Document A, then complete the Guiding Questions for Document A.

Document A: The Emancipation Proclamation (Modified)

On the first day of January, in the year of our Lord one thousand eight hundred and sixty-three, all persons held as slaves within any State in rebellion against the United States, shall be forever free. . .

Now, therefore I, Abraham Lincoln, President of the United States, by virtue of the power in me vested as Commander-in-Chief, of the Army and Navy of the United States. . .do order and designate [appoint] the following States as being in rebellion:
Arkansas, Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, South Carolina, North Carolina, and Virginia.

And I hereby call upon the people so declared to be free to abstain from all violence, unless in necessary self-defense; and I recommend to them that, in all cases when allowed, they labor faithfully for reasonable wages.

And I further declare and make known, that such persons will be received into the armed service of the United States.
And upon this act, sincerely believed to be an act of justice, warranted by the Constitution, upon military necessity, I invoke the considerate judgment of mankind, and the gracious favor of Almighty God.

By the President: ABRAHAM LINCOLN

DOCUMENT A GUIDING QUESTIONS:

1. The Civil War ended in 1865. Why did Lincoln decide to free the slaves before the war even ended?
2. In the Emancipation Proclamation, Lincoln does not mention Delaware, Kentucky, Maryland, and Missouri. These states had slaves but were not part of the Confederacy (they were not fighting against the Union). What happens to the slaves in these states?
3. Why do you think he calls the act a "military necessity" in the last section?

ACTIVITY 3: Read Document B, then complete the Guiding Questions for Document B.
Document B: Frederick Douglass (Modified)

President Lincoln did me the honor to invite me to discuss the best way to [persuade] the slaves in the rebel states to escape. Lincoln was alarmed about the increasing opposition to the war in the North, and the mad cry against it being an abolition war. Lincoln worried that [Northerners who opposed the war would force him to accept an early peace] which would leave all those who had not escaped in slavery.

I was impressed by this kind consideration because before he had said that his goal was to save the Union, with or without slavery. What he said on this day showed a deeper moral conviction against slavery than I had ever seen before in anything spoken or written by him. I listened with the deepest interest and profoundest satisfaction, and, at his suggestion, agreed to organize men who would go into the rebel states, and carry the news of emancipation, and urge the slaves to come within our boundaries....

I refer to this conversation because I think that, on Mr. Lincoln's part, it is evidence that the proclamation, so far at least as he was concerned, was not passed merely as a `necessity.'

Source: In mid-1863, after the Emancipation Proclamation had been announced, President Lincoln called Frederick Douglass to the White House to speak with him. Douglass wrote about the meeting in 1881 in The Life and Times of Frederick Douglass.

DOCUMENT B GUIDING QUESTIONS:

1. According to Douglass, what was happening in the North in 1863?
2. What was Lincoln worried about?
3. What is Douglass's conclusion about Lincoln and the Emancipation Proclamation?
4. Douglass wrote about his meeting with Lincoln almost 20 years later. How might the passage of time affect Douglass's memory of Lincoln and his evaluation of the Emancipation Proclamation?

ACTIVITY 4: Complete the Graphic Organizer on page 4.

ACTIVITY 5: DISCUSSION QUESTIONS**:**

1. Did you have a hard time deciding on who freed the slaves? Explain why or why not?
2. What are the arguments for either side?
3. Why have some historians worked really hard to prove that the slaves freed themselves? Explain.
4. Why does it matter whether or not Lincoln was truly bothered by slavery, as Douglass claims? Explain.

Citations:
The Emancipation Proclamation, January 1, 1863. http://www.ourdocuments.gov/doc.php?flash=false&doc=34
Frederick Douglass. The Life and Times of Frederick Douglass, 1881. http://books.google.com/books?id=X8ILAAAAIAAJ

Did Lincoln free the slaves? OR Did the slaves free themselves?

Evidence that Lincoln Freed the Slaves	Evidence that the Slaves Freed Themselves

Conclusion (Did Lincoln free the slaves or did the slaves free themselves). Make sure you use evidence from the documents to support your opinion: